

Claims

- [c1] 1. A method of obtaining transformable callus tissue comprising:
germinating a mature seed in tissue culture media containing an effective amount of an auxin and an effective amount of a cytokinin to produce a growing seedling containing a nodal section;
isolating the nodal section from the seedling; and
culturing the nodal section on a callus induction media to produce embryogenic callus suitable for transformation.
- [c2] 2. The method of claim 1 in which the auxin is picloram and the cytokinin is BAP.
- [c3] 3. The method of claim 4 in which the picloram concentration is between about 0.5 mg/L and about 20 mg/L.
- [c4] 4. The method of claim 4 in which the BAP concentration is between about 0.1 mg/L and about 10 mg/L.
- [c5] 5. The method of claim 1 in which the tissue culture media is solid.
- [c6] 6. The method of claim 1 in which the nodal section is

obtained from the seedling between 3 and 30 days after germination.

[c7] 7. The method of claim 6 in which the nodal section is obtained from the seedling between 7 and 10 days after germination.

[c8] 8. The method of claim 1 further comprising the steps of:

transforming the callus with a nucleic acid sequence conferring a selected genetic trait to the transformed callus; and

regenerating a transformed plant from the transformed callus containing the nucleic acid sequence.

[c9] 9. A method of obtaining transformable callus tissue comprising:

germinating a zygotic embryo in tissue culture media containing an effective amount of an auxin and an effective amount of a cytokinin to produce a growing seedling containing a nodal section;

isolating the nodal section from the seedling; and

culturing the nodal section on a callus induction media to produce embryogenic callus suitable for transformation.

[c10] 10. The method of claim 9 in which the auxin is picloram

and the cytokinin is BAP.

[c11] 11. The method of claim 10 in which the picloram concentration is between about 0.5 mg/L and about 20 mg/L and the BAP concentration is between about 0.1 mg/L and about 10 mg/L.

[c12] 12. The method of claim 9 further comprising the steps of:

transforming the callus with a nucleic acid sequence conferring a selected genetic trait to the transformed callus; and

regenerating a transformed plant from the transformed callus to obtain a plant containing the nucleic acid sequence.

[c13] 13. A method of transforming monocotyledonous plants comprising:

germinating a zygotic embryo from a monocotyledonous plant in tissue culture media containing an effective amount of an auxin and an effective amount of a cytokinin to produce a growing seedling containing a nodal section;

isolating the nodal section from the seedling;

culturing the nodal section in a callus induction media to form an embryogenic callus culture;

transforming the embryogenic callus culture with a nu-

cleic acid sequence conferring a selected genetic trait to the transformed callus;
selecting transformed callus cells; and
regenerating a transformed monocotyledonous plant from the transformed callus to obtain a plant containing the nucleic acid sequence.

[c14] 14. The method of claim 13 in which the monocotyledonous plant is corn.

[c15] 15. A method of transforming monocotyledonous plants comprising:
germinating a zygotic embryo from a monocotyledonous plant in tissue culture media containing an effective amount of an auxin and an effective amount of a cytokinin to produce a growing seedling containing a nodal section;
isolating the nodal section from the seedling;
culturing the nodal section in media to form a multiple bud culture;
converting the multiple bud culture to an embryogenic callus culture in callus induction media;
transforming the embryogenic callus culture with a nucleic acid sequence conferring a selected genetic trait to the transformed callus;
selecting transformed callus cells; and
regenerating a transformed monocotyledonous plant

from the transformed callus cells to obtain a plant containing the nucleic acid sequence.

[c16] 16. A method of obtaining transformable callus tissue from a plant comprising:
priming a mature seed ;
germinating a mature seed in tissue culture media containing an effective amount of an auxin and an effective amount of a cytokinin to produce a growing seedling containing a nodal section;
isolating the nodal section from the seedling;
culturing the nodal section on callus induction media to produce embryogenic callus.

[c17] 17. A method of transforming monocotyledonous plants comprising:
priming a mature seed;
germinating the mature seed in tissue culture media containing an effective amount of an auxin and an effective amount of a cytokinin to produce a growing seedling containing a nodal section;
isolating the nodal section from the seedling;
culturing the nodal section on callus induction media to form an embryogenic callus culture;
transforming the embryogenic callus culture with a nucleic acid sequence conferring a selected genetic trait to the transformed callus;

selecting transformed callus cells; and
regenerating a transformed plant from the transformed
callus to obtain a plant containing the nucleic acid se-
quence.